

(Westville) to 9,060 gallons (Lincoln). Thus, sewage bypasses constitute an important additional source of fecal bacteria to stream water in this watershed

- 30 Based on the affidavit and materials provided by the state's expert, Dr. Lowell Caneday, there are approximately 155,500 recreationists per year on the Illinois River in Oklahoma. Although I make no attempt to verify or substantiate Dr. Caneday's estimate, there clearly are many recreationists using this river, especially during the summer recreation period, May through September. Toilet facilities have not been adequate to support such river use, especially given Dr. Caneday's estimate of the numbers of people who float the river (76% of total users) and are therefore away from developed facilities. The problem of inadequate toilet facilities for recreational floaters has been documented previously, for example in the Comprehensive Basin Management Plan for the Illinois River Basin in Oklahoma in 1999 and the Illinois River Management Plan in 1999. I do not have an estimate of the volume of human waste deposited along the river by these users, but I believe it would be naïve to think that it is not substantial.
- 31 Thus, there are many sources of fecal bacteria to the Illinois River and its tributaries. I have seen no data that would suggest to me that the spreading of poultry litter is an important cause of fecal bacteria indicator concentrations above standards in the IRW. Where concentrations of fecal indicator bacteria are above standards, there are multiple land uses, and multiple potential sources of bacterial contribution. Furthermore, the concentrations of FCB and *E. coli* tend to be above the Primary Body Contact Recreation standards mainly during high flow periods when I would not expect river usage by recreationists to be high. The concentrations of fecal indicator bacteria in this river do not seem to me to be unusually high compared to other locations in Oklahoma and elsewhere.

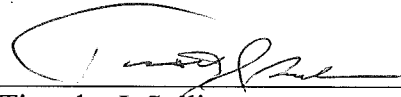

Timothy J. Sullivan
Feb 7, 2008
Date

Exhibit A. Streams within Oklahoma that are 303(d) listed for bacteria. Listings are shown separately for fecal coliform bacteria, *E. coli*, and *Enterococcus*. Listings are widespread throughout the state.

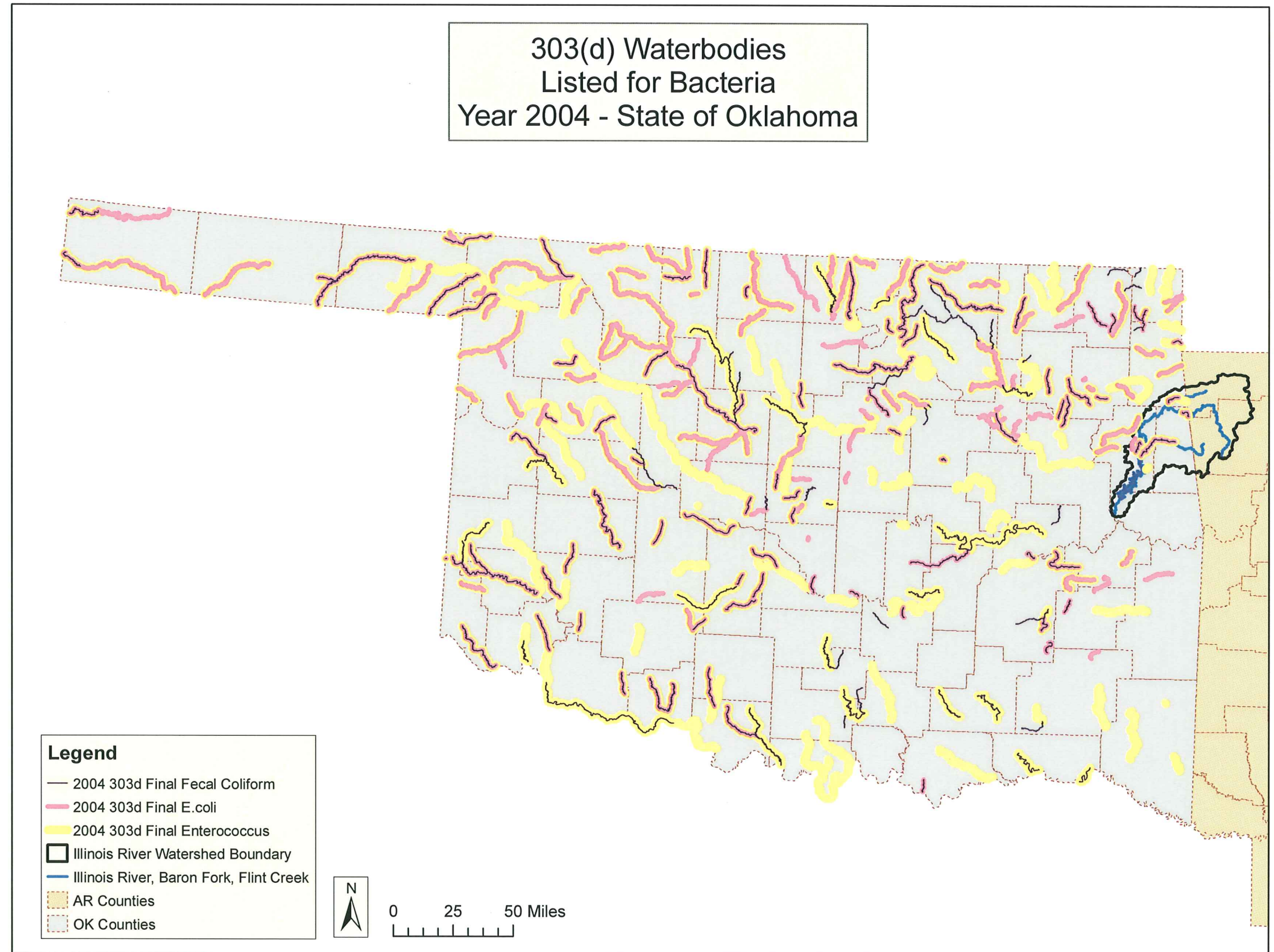


Exhibit B. Number of poultry in Oklahoma, by county, from the agricultural census data in 2002 and discussion with Dr. Billy Clay. Based on these data, the poultry industry is mainly confined to eastern Oklahoma.

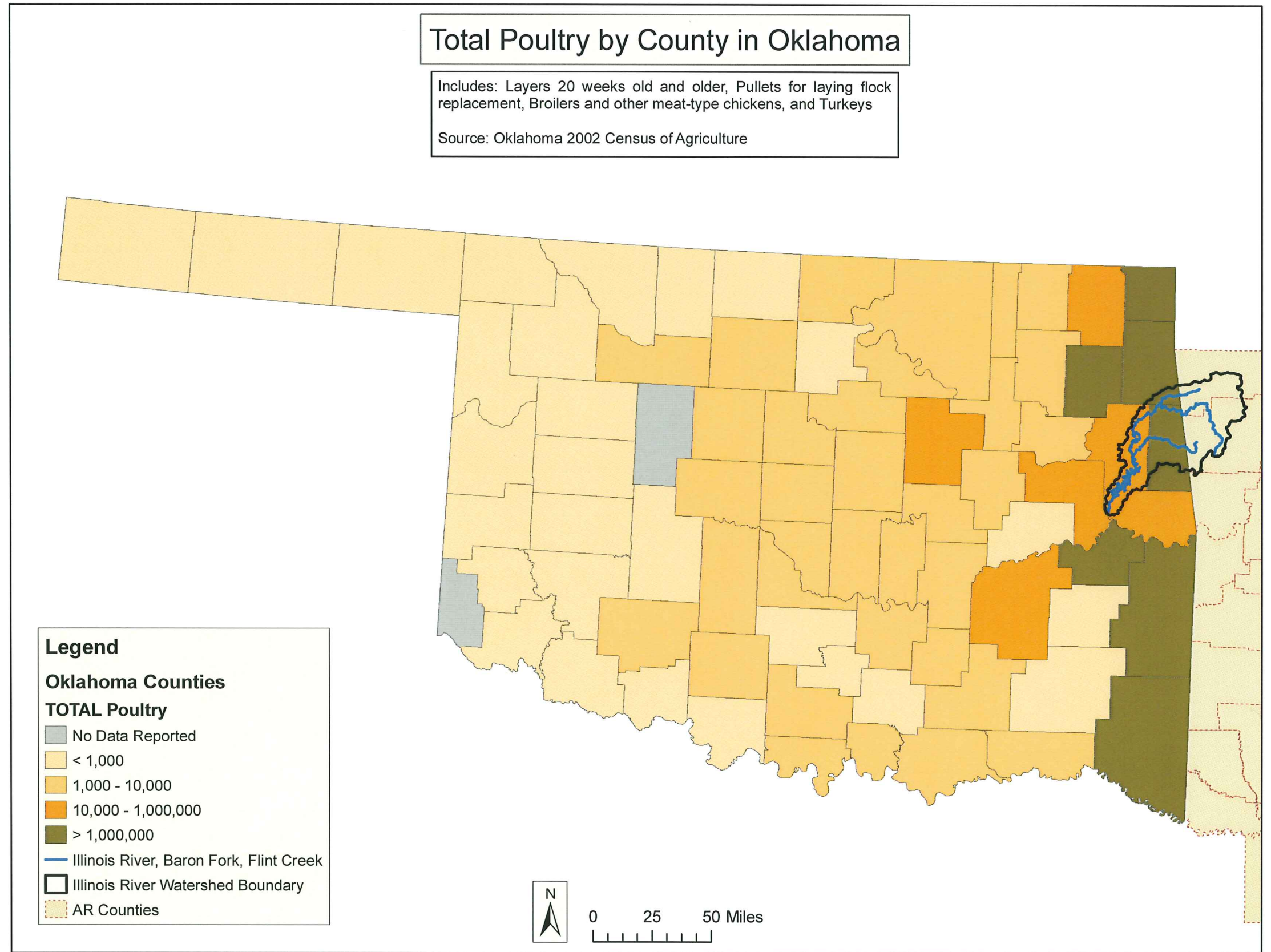


Exhibit C. Map showing the geomean of *Enterococcus* concentrations measured at all sites in Oklahoma represented in EPA's STORET database by 5 or more samples during the recreational period (May 1 to September 30) during the years 2001 through 2006. The height of each bar is proportional to the geomean bacteria concentration. Dots at the base of each bar show the locations of sample collection. The boundaries of the IRW are shown in eastern OK and northwestern AR. Samples that exceed the primary contact geomean standard are shown in orange; those that do not exceed the standard are shown in green. Concentrations exceed the primary contact recreation standard (33 cfu/100 ml) at almost every location (92.3%) for which data are available.

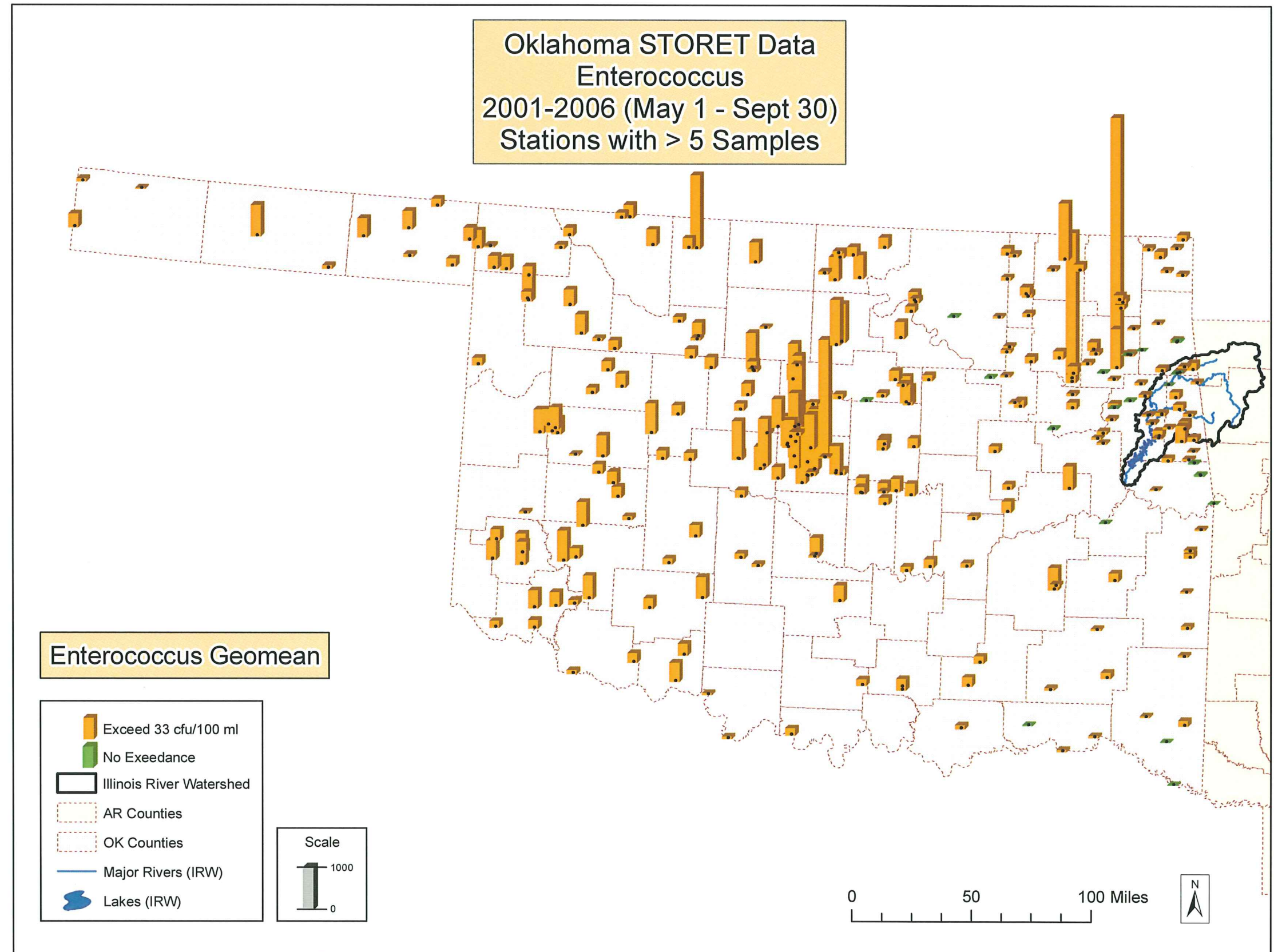


Exhibit D. Map showing the geomean of fecal coliform bacteria concentrations measured at all sites in Oklahoma represented in EPA's STORET database by five or more samples during the recreational period (May 1 to September 30) during the years 2001 through 2006. The height of each bar is proportional to the geomean bacteria concentration. Dots at the base of each bar show the locations of sample collection. The boundaries of the IRW are shown in eastern Oklahoma and northwestern Arkansas. Samples that exceed the primary contact geomean standard are shown in orange; those that do not exceed the standard are shown in green.

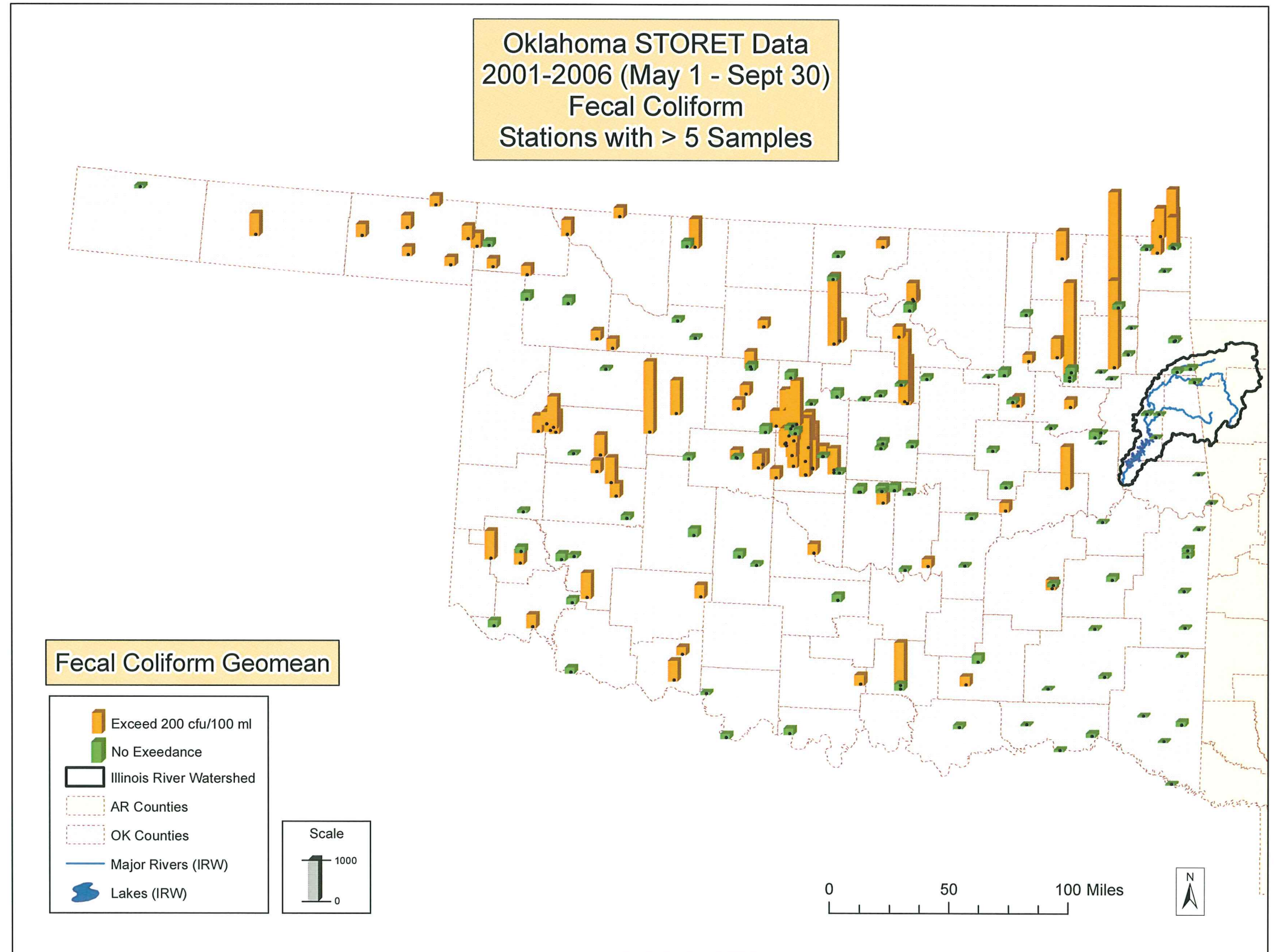
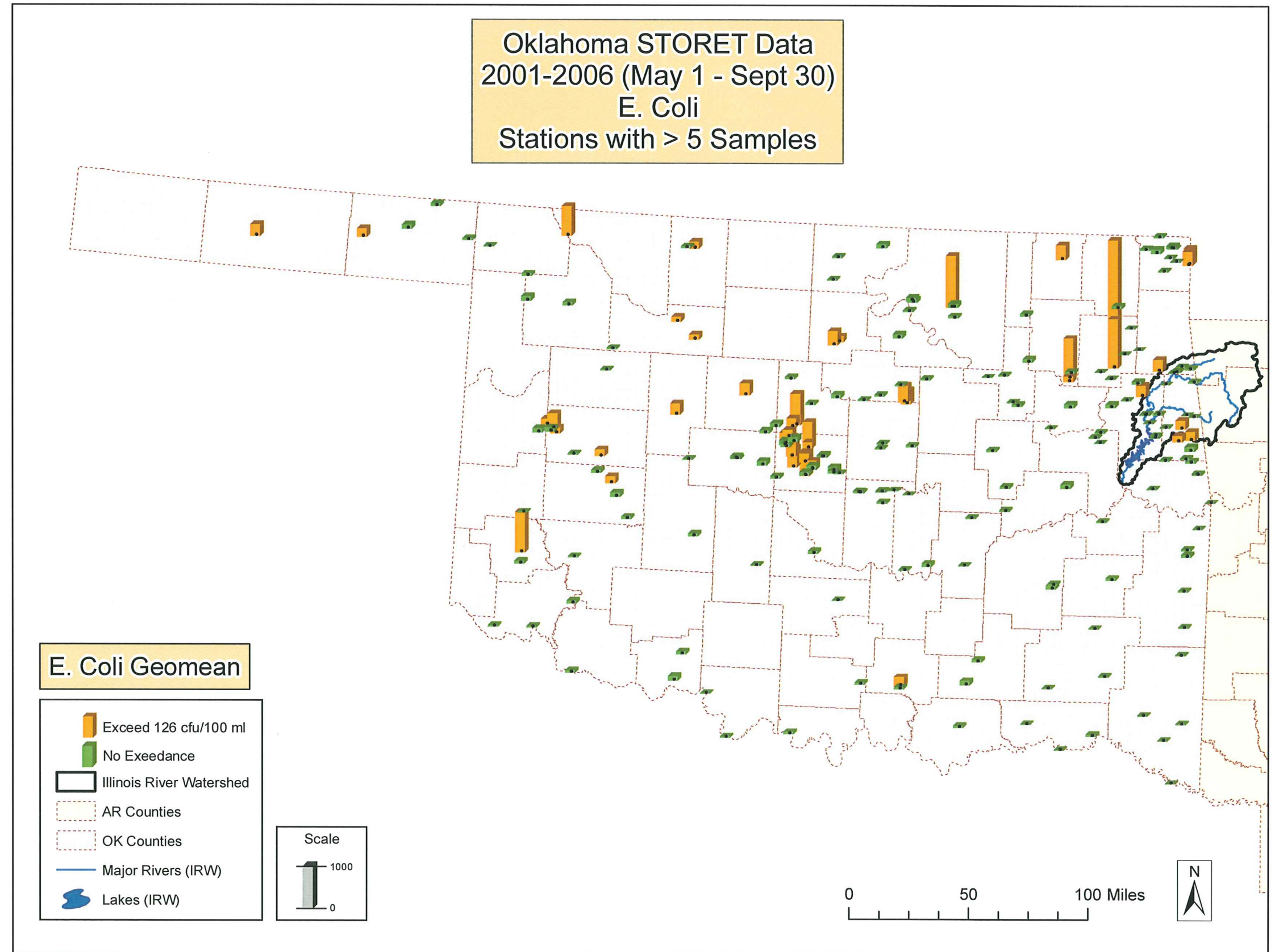


Exhibit E. Map showing the geomean of *E. coli* concentrations measured at all sites in Oklahoma represented in EPA's STORET database by five or more samples during the recreational period (May 1 to September 30) during the years 2001 through 2006. The height of each bar is proportional to the geomean bacteria concentration. Dots at the base of each bar show the locations of sample collection. The boundaries of the IRW are shown in eastern Oklahoma and northwestern Arkansas. Samples that exceed the primary contact geomean standard are shown in orange; those that do not exceed the standard are shown in green. Of the five sites that are colored orange that are located in or near the IRW, only one is actually within the watershed.



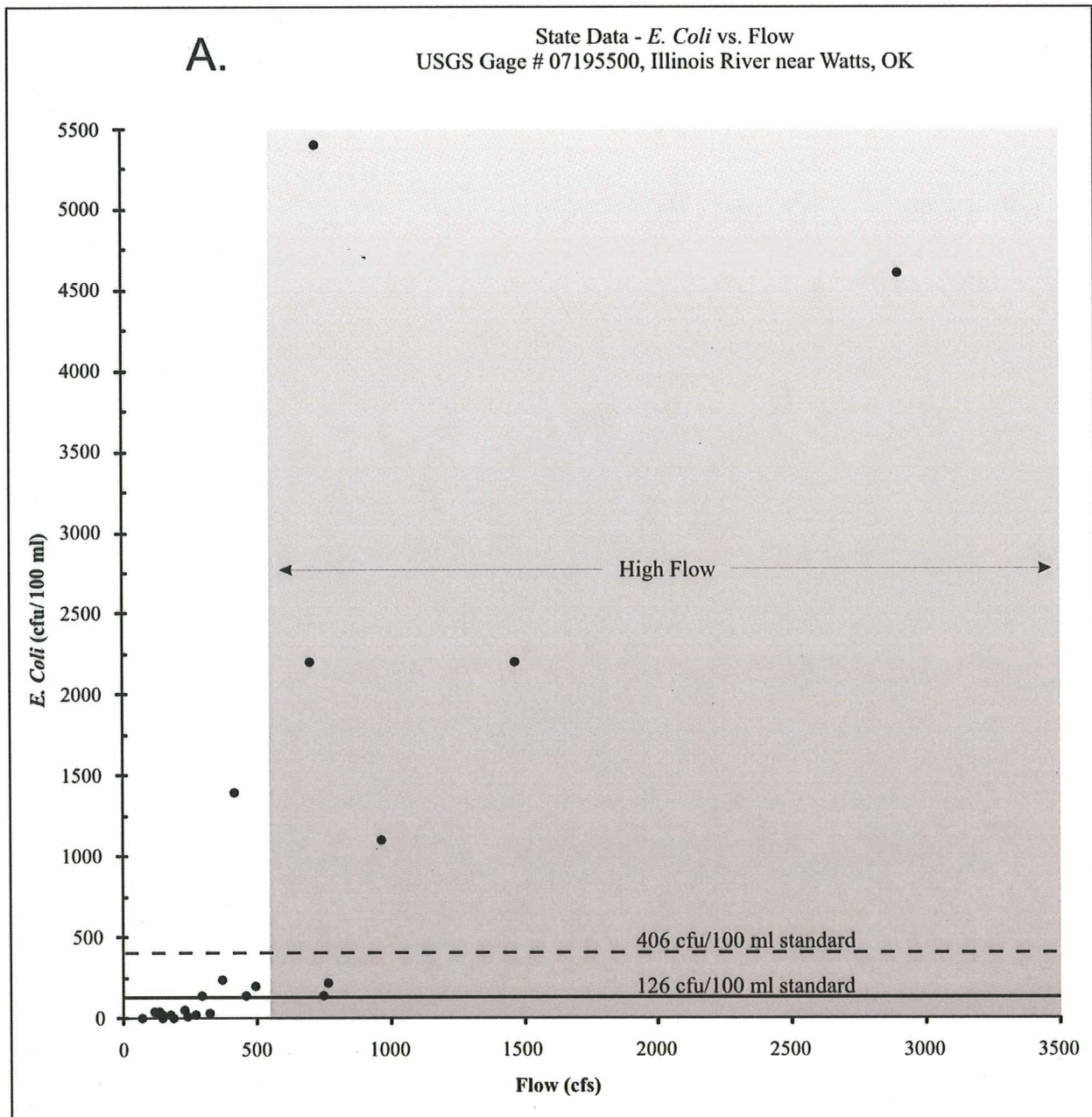


Exhibit F. Relationships between bacterial concentration and river flow for samples collected by the State of Oklahoma between 2005 and 2007 in the Illinois River near Watts, OK. Each dot represents one sample. *E. coli* is shown in A and fecal coliform bacteria in B. The region of the charts that illustrate high flow periods are shaded in gray tone. For this analysis, high flow is defined as flows above the 70th percentile of long-term daily flows at that location. Bacterial concentrations are generally below the primary body contact recreation standards except when flow is high.